## **Abstract of the Disclosure**

A computer-implemented method for updating a process recipe in a CMP process for a multi-layer wafer wherein the CMP process has at least one control parameter capable of being controlled includes the steps of (a) inputting a model comprising at least one control parameter for CMP processing of a wafer having at least first and second layers, said model comprising a first component that predicts a value for a characteristic of the first layer and a second component that predicts a value for a characteristic of the second layer; (b) determining a process recipe based upon the model of step (a); (c) receiving a measured value of the characteristic of the first layer and/or the characteristic of the second layer for a wafer processed according to the process recipe of step (b); and (d) determining an updated model based upon the difference between the measured value and the predicted value of the characteristic.